

PATENT
TH0681N (US)
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)	
)	
DAVID M. SINGLETON, LOUIS KRAVETZ,)	
BRENDAN D. MURRAY)	
)	
Serial No. 09/655,964)	Group Art Unit: 1751
)	
Filed September 6, 2000)	Examiner: Necholus Ogden Jr.
)	
HIGHLY BRANCHED PRIMARY ALCOHOL)	October 9, 2006
COMPOSITIONS, AND BIODEGRADABLE)	
<u>DETERGENTS MADE THEREFROM</u>)	

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER RULE 132

William Warren Schmidt hereby declares:

THAT he received an A.B. in Chemistry from the University of Tennessee at Chattanooga, Magna Cum Laude, in 1967; and that he received his M.S. Degree in Chemistry in 1969 from the University of Tennessee; and he received his PhD in Organic Chemistry from the University of Tennessee at Knoxville in 1975; and

THAT he has been employed by Shell Oil Company or one of its related companies since 1987 and has worked in the areas of the structure/property relationships of surfactants, the utility of alcohol-based surfactants, especially as detergent structures changed, the formulation of liquid detergents, the investigation of the detergency of alcohol ethoxylates, and the utility of alternate hydrophiles for surfactants; and

THAT he was aware of experimental work which was performed at Shell by at least one of the inventors of the present application and others which involved determining the

multisebum detergency of various Shell commercial and experimental products and also of commercially available products such as the LIAL products made by EniChem at that time, and that he was aware of the results of many of these experiments; and

THAT some of these experiments are recorded in the examples of the present application and that other experiments are described below in this declaration; and

THAT the radiotracer multisebum detergency of alcohol sulfates of NEOLDOL® 45 alcohol, LIAL 145 product, and a separated branched fraction of NEOLDOL® 45 alcohol were determined; the detergency was observed on polyester cotton fabric (65/35) in water with a 150 ppm water hardness; the sulfate formulation for each was 0.2 grams per liter of surfactant, 0.34 grams per liter of Zeolite 4A and 0.24 grams per liter of sodium carbonate; and

THAT NEOLDOL® 45 alcohol is described in the present application at the bottom of page 32, and that this alcohol is approximately 80 percent linear and 20 percent branched; and that the LIAL 145 product is approximately 60 percent branched and is as described in WO 91/16409, one of the references cited by the Examiner against the present application; and that a sample of NEOLDOL® 45 alcohol was treated to separate out a primarily branched fraction which was about 95 percent branched and 5 percent linear, and which contained no quaternary carbon atoms, and which was nearly exclusively branched at the 2-alkyl position in the alcohol, and which had an average number of branches per molecule of approximately 0.95, and which contained a distribution of branches of 31.5 percent methyl, 12.2 percent ethyl, 11.3 percent propyl, 12.2 percent butyl, 11.3 percent pentyl and 15.5 percent hexyl, and that there were approximately 1 percent of random branches which apparently were methyl and ethyl branches; and

THAT the results of the multisebum detergency tests are shown in the following table; and

Alcohol Sulfate	Percent Detergency at 10°C
N45 Alcohol Sulfate	15.8
LIAL 145 Alcohol Sulfate	18.5
Branched Fraction of N45 Alcohol Sulfate	34.5

THAT these detergency experiments show a dramatic improvement in cold water cleaning by the substitution of the branched fraction of NEOLDOL® 45 alcohol for the approximately 60 percent branched LIAL 145 product and the approximately 20 percent branched NEOLDOL® 45 alcohol sulfate; and

THAT the detergency only increases from 15.8 to 18.5 when going from the 20 percent branched material to the 60 percent branched material (LIAL 145) whereas the detergency increases much more, from 18.5 to 34.5 when going from 60 percent branched to the 95 percent branched material, and that this result could not be predicted from results achieved from lesser branched materials, including the LIAL 145 material; and

THAT, in his opinion, these results show an unexpected nonobvious increase in the cold water detergency from the results achieved by the prior art product.

William Warren Schmidt further declares that all statements herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date

October 9, 2006

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